

OTTER TAIL POWER COMPANY  
Docket No: EL23-027

Response to: SD Public Utilities Commission

Analyst: Pat Steffensen

Date Received: October 02, 2023

Date Due: October 17, 2023

Date of Response: October 17, 2023

Responding Witness: Matthew J. Olsen, Manager, Regulatory Strategy/Compliance,  
(218) 739-8657

---

Data Request:

Provide an explanation and diagram depicting how the usage data gets from the customer meter to their bill.

Attachments: 2

Attachment 1 to DR SD-PUC-01.16.pdf

Response:

Energy is measured and saved in the meter.

Each day at midnight the meter sends it's "Midnight Read" that consists of the following data

1. Four register reads (used for billing & validation):
  - a. Returned once per day at 12:00am
    - i. kWh
    - ii. kW
    - iii. kVar
    - iv. kVarh
2. 15-minute energy consumption interval data (used for billing & validation)
  - a. Returned every four hours beginning at 12:00am
    - i. kWh Delivered,
    - ii. kVarh Delivered, and
3. 5-minute power quality interval data (used for power quality improvement)
  - a. Returned every four hours beginning at 12:00am
    - i. individual phase voltage
      1. Up to three, dependent on customer's physical service

- ii. individual current
    - 1. Up to three, dependent on customer's physical service
  - iii. meter temperature.
4. Situational Awareness
- a. AlarmsSituational Awareness
    - i. Returned immediately
      - 1. Power Out
      - 2. Power On
      - 3. Etc.
  - b. Alerts – returned with periodic read cycle
    - i. Returned every four hours beginning at 12:00am
      - 1. Tamper
      - 2. High/Low Voltage
      - 3. Demand Resets
      - 4. Etc.

The data is transported on Landis + Gyr's proprietary 900 MHz non-licensed communication system back a collection point called the AMI Headend system, which is a hosted environment. This system manages and secures all the communication traffic on the network. If any meter does not send it's expected data back the Head End will automatically attempt to reach the device to fill in the missing data, ensuring data continuity.

Meter data is then transferred to the MDMS system, which is also hosted by Landis + Gyr. Here the meter reads are validated against the interval data and the interval data against the meter register read. Once the data is validated it is made available to other systems like the, billing system for completion of the meter to cash process, CEP for customer presentment and edifications, OMS for outage validation and troubleshooting, just to name a few.